

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) ~~In a radio network having a plurality of base stations, each providing duplex wireless communication services in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations, and an interface connected to the base stations, a~~ A method for establishing wireless communication via a base station having a selectively operable beamforming antenna comprising:

detecting by the base station an ~~transmitting~~ an omnidirectional sounding pulse from a wireless mobile unit located in a geographic coverage area of ~~at least one of the base station stations;~~

communicating by the base station information related to the detected sounding pulse to an ~~[[the]]~~ interface ~~by each base station detecting the sounding pulse;~~

selecting a base station receiving from the interface notification of selection from among the base stations that detected the sounding pulse for mobile unit communication based on the communicated information;

determining a relative location of the mobile unit with respect to the beamforming antenna of the base station based on information related to the detected sounding pulse; and

directing a communication beam from the selected base station to the mobile unit to establish wireless communication, whereby the directing of a communication beam includes operating the base station's beamforming antenna to form a communication beam covering a selected portion of the coverage area serviced by the base station that encompasses the relative location of the mobile unit.

2. (Currently amended) The method of claim 1 performed by a Node B as the base station wherein[[:]]

~~the radio network is a UMTS Terrestrial Radio Access Network (UTRAN), each base station is a Node B, the interface is a Radio Network Controller (RNC) and the mobile unit is a mobile User Equipment (UE)[[:]]~~

~~the communicating information is between Node Bs and the RNC via an Iub or combination Iub/Iur interface;~~

~~the base station selection is performed by the RNC by selecting a Node B; and
the communication established between the selected Node B and the UE is via a Uu interface.~~

3. (Canceled)

4. (Currently amended) The method of claim 2 [[3]] wherein the formed communication beam carries common channels and the operating of the ~~selected~~ Node B's beamforming antenna to form a communication beam that encompasses the relative location of the UE is conducted such that other UEs with which the ~~selected~~ Node B is conducting wireless communication are also encompassed within the formed communication beam so that the formed beam provides common channel service to a plurality of UEs.

5. (Canceled)

6. (Currently amended) The method of claim 1 [[5]] wherein the formed communication beam carries common channels and the operating the ~~selected~~ base station's antenna to form a communication beam that encompasses the relative location of the mobile unit is conducted such that other mobile units with which the ~~selected~~ base station is conducting wireless communication are also encompassed within the formed communication beam so that the formed beam provides common channel service to a plurality of mobile units.

7-8. (Canceled)

9. (Currently amended) The method of claim 1 wherein:
the detecting by the base station ~~transmitting~~ of an omnidirectional sounding pulse is from each of a plurality of mobile units;

the communicating by the base station information includes communicating information related to each distinguishable sounding pulse from each respective mobile unit detected by the [[a]] base station to a respective selecting interface for base station selection with the respective mobile unit;

the receiving from the interface notification of selection comprises receiving notification of selection with respect to at least one of the mobile units from a respective selecting interface ~~base station selection includes selecting a base station by each respective selecting interface for each respective mobile unit communication based on the information related to the distinguishable detected sounding pulse of the respective mobile unit from each base station that detected a distinguishable sounding pulse of the respective mobile unit; and~~

for each respective mobile unit for which the ~~at least one~~ base station received a distinguishable sounding pulse and received a notification of selection, directing a communication beam from the ~~respective selected~~ base station to the mobile unit to establish wireless communication.

10-11. (Canceled)

12. (Currently amended) The method of claim 9 [[11]] wherein:
the formed communication beams carry common channels; and
~~a first~~ when the base station is selected for communication with a first mobile unit and is also selected for communication with a second mobile unit, ~~;~~ and the operating of the ~~first~~ base station's beamforming antenna to form a communication beam is conducted such that both first and second mobile units are encompassed within the formed communication beam and the formed beam provides common channel service to both first and second mobile units.

13-14. (Canceled)

15. (Currently amended) The method of claim 9 wherein the detecting by the base station ~~transmitting of~~ an omnidirectional sounding pulse from each of a plurality of mobile units includes receiving ~~transmitting of~~ mobile unit identification information associated with the sounding pulse from ~~transmitted by~~ each respective mobile unit.

16. (Currently amended) The method of claim 9 ~~wherein:~~ where each of the mobile units is equipped with a global positioning system (GPS), wherein ~~;~~ and the detecting by the base station ~~transmitting of~~ an omnidirectional sounding pulse from each of a plurality of mobile units includes receiving ~~transmitting of~~ mobile unit location information associated with the sounding pulse from ~~transmitted by~~ each respective mobile unit.

17-18. (Canceled)

19. (Currently amended) The method of claim 1 wherein the detecting by the base station ~~transmitting of~~ an omnidirectional sounding pulse includes receiving ~~transmitting of~~ identification information associated with the sounding pulse from ~~transmitted by~~ the mobile unit.

20. (Currently amended) The method of claim 1 ~~wherein~~ where the mobile unit is equipped with a global positioning system (GPS), wherein ~~and the detecting by the base station~~ an omnidirectional sounding pulse includes receiving ~~transmitting of~~ mobile unit location information associated with the sounding pulse from ~~transmitted by~~ the mobile unit.

21-22. (Canceled)

23. (Currently amended) A base station communication network ~~for~~ for wireless communication with mobile units comprising:

a selectively operable beamforming antenna configured to provide a plurality of base stations, each providing duplex wireless communication services in a geographic coverage area that may or may not overlap with the geographic coverage areas of other ~~of the~~ base stations;

~~at least one base station interface connected to the base stations;~~

the each base station configured to detect sounding pulses emitted from mobile units in order to establish wireless communication with such mobile units;

the each base station configured to communicate information related to a detected sounding pulse from a mobile unit to a selected interface;

~~the base station configured to receive from an each interface a notification to establish a wireless communication, when selected, configured to select a base station for wireless communication with a mobile units with respect to which the base station detected that transmitted a sounding pulse; based on the information communicated from each base station that detected the sounding pulse emitted from that mobile unit;~~

~~the base station configured to determine a relative location with respect to the beamforming antenna of the base station and mobile units with respect to which the base station received a notification to establish a wireless communication, the relative location being based on information related to a respective detected sounding pulse;~~
and

~~the each base station configured to direct a communication beam when selected to a respective mobile units with respect to which the base station received a notification~~ to establish wireless communication.

24. (Currently amended) The ~~base station invention~~ of claim 23 wherein the ~~radio network is a UMTS Terrestrial Radio Access Network (UTRAN), each base station is configured as a Node B that is~~ configured to communicate with mobile units configured as mobile User Equipments (UEs) via a Uu interface, and ~~wherein the each base station interface is a Radio Network Controller (RNC) configured for communicating information with the Node Bs via an Iub interface or combination Iub/Iur interface in connection with another RNC.~~

25. (Currently amended) The ~~base station invention~~ of claim 24 wherein ~~the each Node B has a selectively operable beamforming antenna is~~ configurable to direct a communication beam covering a selected portion of the coverage area serviced by the Node B that encompasses the relative location of a UE when that Node B is selected to communicate with the UE.

26. (Currently amended) The base station invention of claim 25 wherein ~~the~~ each Node B is configured to operate its beamforming antenna to form a communication beam that carries common channels that encompasses the relative location of a plurality of UEs so that the formed beam provides common channel service to a plurality of UEs.

27-30. (Canceled)

31. (Currently amended) The base station invention of claim 23 configured to communicate with 28 wherein ~~each~~ mobile units ~~unit~~ is equipped with a global positioning system (GPS) ~~and wherein the base station~~ is configured to detect ~~transmit~~ an omnidirectional sounding pulse that includes mobile unit location information determined by ~~it's~~ a mobile unit's GPS.

32. (Currently amended) The base station invention of claim 23 ~~[[28]]~~ wherein ~~each mobile unit~~ the base station is configured to detect ~~transmit~~ an omnidirectional sounding pulse that includes mobile unit identification information.

33-34. (Canceled)

35. (Currently amended) ~~In a radio network having a plurality of base stations, each providing duplex wireless communication services in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations,~~ A method for establishing wireless communication by a mobile unit comprising:

transmitting an omnidirectional sounding pulse from ~~the a~~ wireless mobile unit for detection by base stations that have ~~located in~~ a geographic coverage area ~~that includes a current location of the mobile unit of at least one of the base stations,~~ wherein the transmitting of an omnidirectional sounding pulse includes transmitting of mobile unit location information associated with the sounding pulse to enable base stations to direct communication beams to the mobile unit;

receiving directed ~~directing a~~ communication beams ~~[[beam]]~~ from base stations detecting the sounding pulse ~~towards~~ at the mobile unit;

selecting a base station from among the base stations that detected the sounding pulse based on the communication beams received by the mobile unit; and

establishing a wireless communication with ~~between~~ the selected base station ~~and the mobile unit.~~

36. (Canceled)

37. (Currently amended) The method of claim 35 ~~where 36~~ ~~wherein: the radio network is a UMTS Terrestrial Radio Access Network (UTRAN), each base station is a Node B, the interface is a Radio Network Controller (RNC) and~~ wherein the mobile unit is a mobile User Equipment (UE);

~~the communicating information is between Node Bs and the RNC via an Iub or combination Iub/Iur interface; and~~

~~the communication established between the selected Node B and the UE is via a Uu interface.~~

38-41. (Canceled)

42. (Original) The method of claim 35 wherein the method is restarted if the mobile unit does not receive a directed communication beam from a base station within a predefined time period from its transmitting of an omnidirectional sounding pulse.

43. (Currently amended) The method of claim 35 further comprising monitoring the power level of a directed communication beam received from ~~between a~~ base station by ~~and~~ the mobile unit and repeating the method of claim 34 if the monitored power level falls below a predefined level.

44. (Previously presented) The method of claim 35 wherein the transmitting of an omnidirectional sounding pulse includes transmitting of identification information associated with the sounding pulse transmitted by the mobile unit.

45. (Original) The method of claim 35 wherein the mobile unit is equipped with a global positioning system (GPS) and the transmitting of an omnidirectional sounding pulse includes transmitting of mobile unit location information associated with the sounding pulse transmitted by the mobile unit.

46. (Original) The method of claim 35 wherein the transmitting of an omnidirectional sounding pulse includes transmitting a subsequent sounding pulse of increased power by the mobile unit if it does not receive a directed communication beam from a base station within a predefined time period from its transmitting of an omnidirectional sounding pulse.

47. (Original) The method of claim 35 wherein the transmitting of an omnidirectional sounding pulse includes transmitting a series of omnidirectional sounding pulses of increasing power from the mobile unit.

48. (Currently amended) A mobile unit ~~for use in a radio network having a plurality of base stations, each base station providing duplex wireless communication services in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations,~~ the mobile unit comprising:

a transmitter configured to transmit an omnidirectional sounding pulse for detection by base stations that have a geographic coverage area that includes a current location of the mobile unit, such that the sounding pulse includes mobile unit location information associated with the sounding pulse to enable base stations to direct communication beams to the mobile unit;

a receiver configured to receive directed ~~for receiving~~ communication beams from base stations that detected a sounding pulse transmitted by the mobile unit; ~~and~~

a processor configured to select a base station from among the base stations that detected the sounding pulse with which to establish a wireless communication based on communication beams received by the mobile unit from base stations that detected a sounding pulse transmitted by the mobile unit; and

the mobile unit configured to establish a wireless communication with a base station selected by the processor.

49. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the mobile unit is configured to monitor the power level of a wireless communication with a base station and the transmitter is configured to transmit an omnidirectional sounding pulse if the monitored power level falls below a predefined level.

50. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the transmitter ~~mobile unit~~ is configured to transmit a subsequent omnidirectional sounding pulse if a communication beam is not received from a base station that detected a sounding pulse transmitted by the mobile unit within a predefined time period from transmitting an omnidirectional sounding pulse.

51. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the mobile unit is equipped with a global positioning system (GPS) and the transmitter is configured to transmit of an omnidirectional sounding pulse that includes mobile unit location information determined by its GPS.

52. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the transmitter ~~mobile unit~~ is configured to transmit of an omnidirectional sounding pulse that includes mobile unit identification information.

53. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the transmitter ~~mobile unit~~ is configured to transmit an omnidirectional sounding pulse to initiate communication with a base station and to transmit a subsequent sounding pulse of increased power if a communication beam from a base station that detected a sounding pulse transmitted by the mobile unit is not received within a predefined time period from the transmitting of an omnidirectional sounding pulse.

54. (Currently amended) The mobile unit ~~invention~~ of claim 48 wherein the transmitter ~~mobile unit~~ is configured to transmit a series of omnidirectional sounding pulses of increasing power to initiate communication with a base station.

55-56. (Canceled)